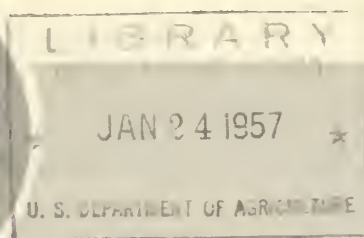


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THE SPECIAL SCHOOL MILK PROGRAM in ST. LOUIS, MO.



A Preliminary Report



U. S. DEPARTMENT OF AGRICULTURE

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THE SPECIAL SCHOOL MILK PROGRAM IN ST. LOUIS, MO.

A Preliminary Report

By Kenneth E. Anderson
Market Development Branch, Marketing Research Division

SUMMARY

Average daily milk consumption per pupil in elementary schools of St. Louis, Mo., serving milk rose 50 percent after the Special School Milk Program was placed in operation, and in high schools, the average consumption doubled, a study by the Agricultural Marketing Service shows.

Elementary pupils had averaged about one-tenth of a pint a day before the special milk program was started; they averaged half again as much a year later in 1955-56, with the Special School Milk Program in operation. High school pupils had averaged something over one-tenth of a pint a day in the earlier year, and they averaged about a quarter of a pint under the special program.

Several factors entered into the increases. Prices before the special program went into effect had been 7-1/2 cents a half pint in elementary schools with cafeterias. (Used tokens, not cash.) Under the program, prices were reduced to 3 cents a half pint. In the elementary schools with milk stations, the price was reduced from 6 cents a half pint to 3 cents and in the high schools, from 7-1/2 cents a half pint to 2 half pints for 7-1/2 cents. The study showed substantial differences in the amount of increases in consumption, when comparisons were made on the basis of income and educational levels in the school districts. In general, increases were largest among children attending schools in districts with low incomes. Increases were largest also in schools serving districts where the average educational level of adults was relatively low (less than 8.5 years). Size of school had a significant effect on consumption increases. The larger elementary schools showed the greatest increases, while consumption increased the most in the smaller high schools.

BACKGROUND

Consumption of milk in schools was encouraged with the initiation of the National School Lunch Program in 1946; and with the advent of the Special School Milk Program in September 1954, milk was made even more readily available to pupils. Nationally, the Special School Milk Program is administered by the Department of Agriculture, and within the States by State educational agencies which allocate funds provided by the Department to

individual schools for reducing the price of milk to pupils. Fifty million dollars was authorized for this program for the 1954-55 school year, 60 million for the following year, and 75 million for each of the 1957 and 1958 fiscal years. Beginning with the 1957 fiscal year the program was broadened to include non-profit institutions devoted to the care and training of children.

A study was conducted to determine and evaluate the effects of certain factors on milk consumption in St. Louis elementary and secondary schools in the 1954-55 and 1955-56 school years.^{1/} The factors studied include price, availability of milk, income and educational levels in the school districts, size of school, and grade level of pupils. While certain cross-relationships among these factors probably exist, when data are grouped into each of these categories some definite consumption patterns are revealed. In a preliminary analysis of the data, it was found that income and educational levels of the districts were not highly correlated.

The major findings of this study are summarized in this preliminary report. A full report containing a detailed analysis is being prepared.

CHANGES IN MILK CONSUMPTION

In March 1955, the St. Louis public elementary schools with cafeterias entered the Special School Milk Program, permitting the price charged pupils per half pint of milk to be reduced from 7-1/2 cents to 5 cents. Average daily consumption of milk per pupil, excluding that served with meals, was 60 percent greater in the period March-June 1956, after the reduction of one-third in price, than in the earlier part of the school year. This comparison, however, includes some seasonal factors affecting consumption, the effects of which are not known.

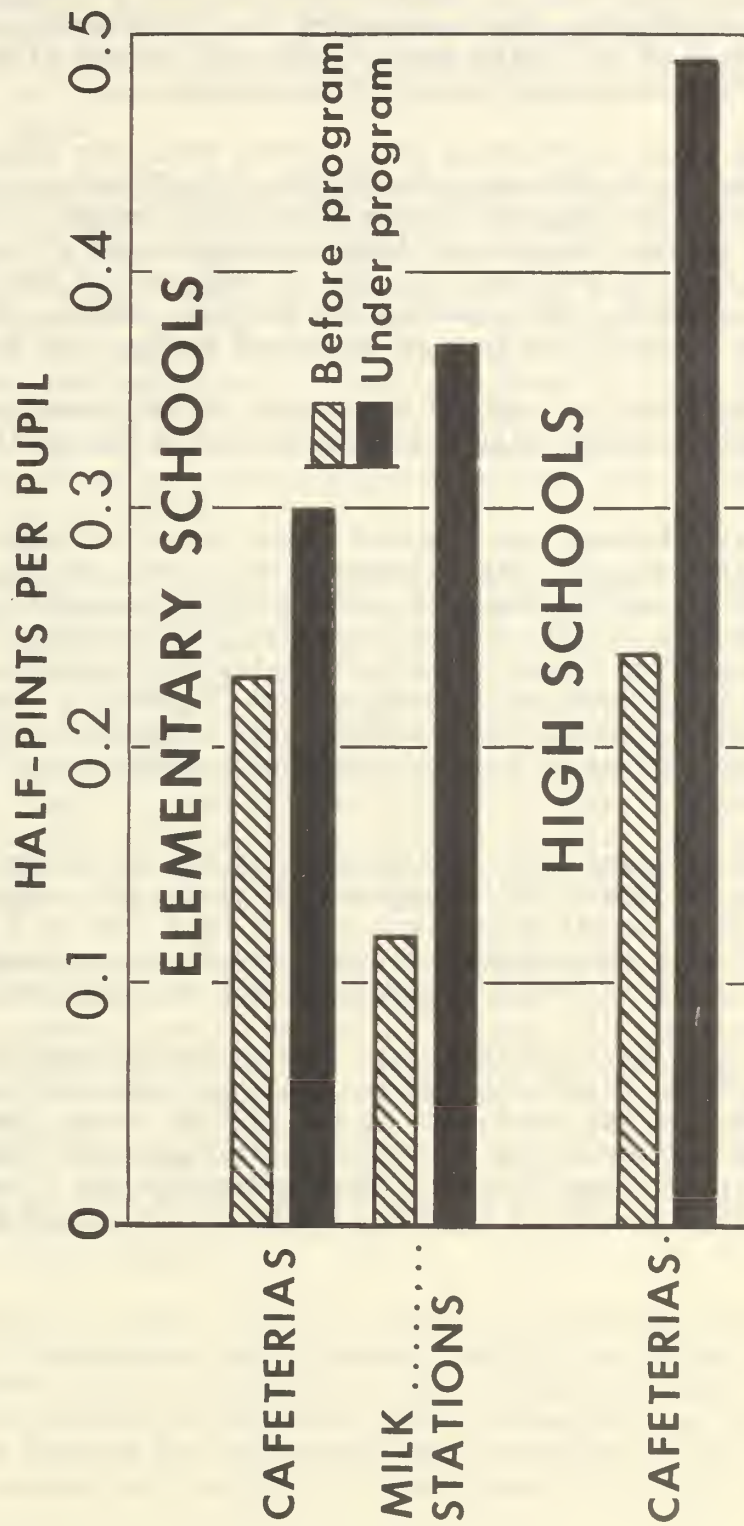
In September 1955, the Special School Milk Program was continued in schools with cafeterias and expanded to include schools with milk stations (no food service except milk). The price charged pupils was further reduced from 5 cents to 3 cents in cafeterias, and was reduced from 6 cents to 3 cents in schools with milk stations.

When the price was reduced from 7-1/2 cents a half pint to 3 cents--a 60 percent reduction--for the period September 1955 through February 1956 in the schools with cafeterias, milk consumption per pupil, exclusive of that served with meals, increased 180 percent over the previous year, while milk consumed with meals dropped 6 percent, resulting in a net increase of 30 percent. During the period March-June 1956, the price was 3 cents a half

^{1/} A similar study was conducted in Los Angeles, Calif. A preliminary report on that study is in preparation.

EFFECT OF SPECIAL SCHOOL MILK PROGRAM ON MILK CONSUMPTION

St. Louis Public Schools, Comparable Periods, 1954-55 and 1955-56



INCLUDING ONLY SCHOOLS SERVING MILK

pint of milk, compared to 5 cents during the same period in 1955. This 40 percent price reduction was accompanied by a 62 percent increase in consumption, exclusive of milk with meals, while milk served with meals remained the same, resulting in a net increase of 24 percent.

Average daily consumption of milk with meals was high relative to that consumed other than with meals during the 1954-55 school year, and milk consumed with meals remained higher during most months of the 1955-56 school year. As a result, the average daily consumption of all milk was influenced appreciably by this relationship, and in turn the net increase when the 2 years were compared. In comparing the 2 school years, milk consumption with meals either remained the same or increased during 3 of the 10 months.

When the price was reduced 50 percent in the elementary schools with milk stations, average daily consumption of milk per pupil increased 208 percent.

Comparison between the 2 school years for all elementary schools serving milk, including schools with cafeterias and schools with milk stations, reveals a 50 percent increase in average daily consumption per pupil in 1955-56 over 1954-55. For the period September 1955-February 1956, the increase in consumption over a year earlier, that is, for the period before the milk program was introduced, was something over 50 percent. For the period March-June 1956, the increase in consumption over a year earlier, when the price was initially reduced to 5 cents, averaged somewhat less than 50 percent (table 1).

In late February 1956, the entrance of the St. Louis public high schools into the Special School Milk Program enabled the high schools to reduce the price of milk to pupils from 7-1/2 cents a half pint to 7-1/2 cents for 2 half pints. With this 50 percent price reduction, average daily consumption of milk per pupil increased 104 percent over the same period a year earlier.

During the 1954-55 school year, the number of schools with cafeterias ranged from 47 to 49 and the number of schools with milk stations varied from 18 to 19. During the first part of the 1955-56 school year, there were 49 schools with cafeterias and 20 with milk stations, and during the latter part of the year there were 50 schools with cafeterias and 21 with milk stations. All 11 of the high schools offered milk to pupils during both school years.

While it is apparent that price had a marked effect on milk consumption in these St. Louis schools, there are additional influencing factors that are noteworthy. In this report, a discussion of the effect of such other factors on milk consumption in elementary schools will be limited to milk exclusive of that served with meals.

Pupils in elementary schools serving low-income districts drank about 171 percent more milk, other than with meals, and students from middle-income districts drank about 157 percent more during the 1955-56 school year than in the previous school year. Pupils in schools serving high-income districts increased their consumption by only 44 percent. As average daily consumption per student was about the same in all 3 income groups during the 1954-55 school year, the increase demonstrates a greater effect on those in the lower income school districts when price is reduced. Milk given free to pupils--small in total quantity--decreased 100 percent in schools in the high-income districts and 50 percent in the middle-income districts, and remained the same in the low-income districts.

In the high schools serving low-income districts, pupils consumed 147 percent more milk during the period March-June 1956 compared with the previous year. The increase in milk consumption of pupils in high schools serving middle-income districts was 118 percent, and for those in schools serving high-income districts, 64 percent. As in the elementary schools, pupils in high schools serving low-income districts were most responsive to the reduced milk price. During the period March-June 1955, before the price was reduced, milk consumption per pupil in high schools located in high-income districts was 1.7 times that in high schools in low-income districts. Increased milk consumption in schools in the lower income districts narrowed the ratio in average daily consumption per pupil between the 2 groups to 1.1 to 1.

Median educational level of adults in the districts served by the schools had a noticeable effect on milk consumption of pupils in elementary schools. Pupils in schools serving districts falling into the low educational group increased their consumption of milk other than with meals by 186 percent, those in schools in the middle educational level districts by 112 percent, and those in schools in the high educational level districts by 100 percent. Average daily consumption per pupil during the 1954-55 school year, before the price change, was about the same in all groups, so pupils in schools serving districts of low educational level were most receptive to drinking milk at a reduced price.

High school pupils in schools serving the low educational districts increased their milk consumption by 200 percent during the period March-June 1956, as compared to the same period in 1955; those in schools serving the middle educational districts increased their consumption by 92 percent, and those in schools serving the high educational districts by 85 percent. The pupils in high schools serving the low educational level districts

consumed only about half as much as pupils in schools in the high educational level districts during the period March-June 1955. The pronounced increase in consumption in the schools serving the lower educational level districts narrowed the margin in average daily consumption per pupil in the 2 groups from a ratio of 2 to 1 to 1.3 to 1.

Size of school affected milk consumption in elementary schools. Milk consumption in the large schools increased 150 percent, in the medium-sized schools 171 percent, and in the small schools 67 percent.

Converse to the pattern in the elementary schools, the increase in milk consumption per pupil in high schools after a price reduction was greatest in the smaller schools. When March-June 1956 is compared with the same period in 1955, this increase was 147 percent in small schools, 66 percent in medium-sized schools, and 119 percent in large schools. Average daily consumption per high school pupil was about the same in the large and small schools in 1955 and that in medium-sized schools was about 1.7 times as great. So the increased milk consumption in the small and large schools narrowed the ratio in average daily consumption per pupil between those schools and the medium-sized schools to about 1.2 to 1.

In general, the grade level of pupils in St. Louis elementary schools does not appear to affect consumption in a consistent way. Consumption of milk per pupil increased from 1954-55 to 1955-56 by 200 percent in schools teaching kindergarten through the third grade (kindergarten-3); 257 percent in kindergarten-4; 140 percent in kindergarten-6; 143 percent in kindergarten-8; 380 percent in grades 4-8; 133 percent in grades 5-8; and 91 percent in grades 6-8. Grades 9-12 are taught in all St. Louis public high schools.

Information on availability--frequency of milk service--will be presented in the full report to be published later.

Table 1.--Percentage change in 1955-56 from 1954-55 average daily consumption of purchased milk per pupil in schools serving milk, St. Louis, corresponding months

Item	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	School year 1/
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
2/ Elementary schools:--											
Cafeterias:											
With meals.....	-6.2	-6.2	5.3	00.0	-10.5	-11.1	-6.7	7.7	-7.7	-16.7	-6.2
Other.....	120.0	180.0	180.0	180.0	160.0	200.0	75.0	44.4	50.0	42.9	116.7
Total.....	18.2	31.8	41.7	43.5	25.0	34.8	26.1	22.7	14.3	5.3	27.3
Milk stations.....	---	166.7	193.3	340.0	218.2	200.0	184.6	240.0	200.0	---	208.3
Total:	18.2	55.0	63.6	84.2	55.0	60.0	55.0	47.4	38.9	5.3	50.0
High schools:	-8.8	00.0	7.1	20.0	26.1	38.5	103.7	120.8	100.0	81.8	46.2
All schools:	7.7	34.8	41.7	61.9	42.9	50.0	72.7	66.7	55.0	35.0	4/ 45.4

1/ Average weighted by average daily attendance and number of days milk was served.

2/ In the 1954-55 school year, there were 47 schools with cafeterias in September, 48 in October, 47 in November and December, 48 in January and February, 49 in March, and 48 in April, May, and June. There were 19 elementary schools with milk stations from October through December and 18 from January through May during the 1954-55 school year. In the 1955-56 school year there were 49 schools with cafeterias from September through December and 50 from February through June. There were 20 schools with milk stations from October through February and 21 from March through May. During the 1954-55 school year there were 109 elementary schools during the first semester and 110 during the second semester, and in the 1955-56 school year there were 110 during the first semester and 112 during the second semester.

3/ There were 11 high schools during both school years. None of these schools participated in the Special School Milk Program until late February 1956, and at that time all 11 schools participated.

4/ The average percentage increase for the school year for all schools falls outside the range of percentage increases for elementary and high schools as a result of rounding and of variable weights of average daily attendance and number of days milk was served.

Table 2.---Average daily consumption of purchased milk per pupil in schools serving milk, St. Louis, by months, September 1954-June 1955

Item	Sept.		Oct.		Nov.		Dec.		Jan.		Feb.		March		April		May		June		School year	
	Half	pints	Half	pints	Half	pints	Half	pints	Half	pints	Half	pints	Half	pints	Half	pints	Half	pints	Half	pints	Half	pints
<u>2/</u>																						
Elementary schools:																						
Cafeterias:																						
With meals.....	.16		.16		.19		.18		.19		.18		.15		.13		.13		.12		.16	
Other.....	.05		.05		.05		.05		.05		.05		.08		.09		.08		.07		.06	
Total.....	.22		.22		.24		.23		.24		.23		.23		.22		.21		.19		.22	
Milk stations.....	---		.15		.15		.10		.11		.12		.13		.10		.09		---		.12	
Total:	.22		.20		.22		.19		.20		.20		.20		.19		.18		.19		.20	
High schools:	.34		.30		.28		.25		.23		.26		.27		.24		.23		.22		.26	
All schools:	.26		.23		.24		.21		.21		.22		.22		.21		.20		.20		.22	

1/ Average weighted by average daily attendance and number of days milk was served.

2/ In the 1954-55 school year there were 47 schools with cafeterias in September, 48 in October, 47 in November and December, 48 in January and February, 49 in March, and 48 in April, May, and June. There were 19 elementary schools with milk stations from October through December and 18 from January through May during the 1954-55 school year. During the 1954-55 school year there were 109 elementary schools during the first semester and 110 during the second semester.

3/ There were 11 high schools during both school years. None of these schools participated in the Special School Milk Program until late February 1956, and at that time all 11 schools participated.

Table 3.--Average daily consumption of purchased milk per pupil in schools serving milk, St. Louis, by months, September 1955-June 1956

Item	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	School year 1/
	Half pints	Half pints	Half pints	Half pints	Half pints	Half pints	Half pints	Half pints	Half pints	Half pints	Half pints
<u>2/</u>											
Elementary schools:											
Cafeterias:											
With meals.....	.15	.15	.20	.18	.17	.16	.14	.14	.12	.10	.15
Other.....	.11	.14	.14	.14	.13	.15	.14	.13	.12	.10	.13
Total.....	.26	.29	.34	.33	.30	.31	.29	.27	.24	.20	.28
Milk stations.....	---	.40	.44	.44	.35	.36	.37	.34	.27	---	.37
Total:	.26	.31	.36	.35	.31	.32	.31	.28	.25	.20	.30
High schools:	.31	.30	.30	.30	.29	.36	.55	.53	.46	.40	.38
All schools:	.28	.31	.34	.34	.30	.33	.38	.35	.31	.27	.32

1/ Average weighted by average daily attendance and number of days milk was served.

2/ In the 1955-56 school year there were 49 schools with cafeterias from September through December and 50 from February through June. There were 20 schools with milk stations from October through February and 21 from March through May. During the 1955-56 school year there were 110 elementary schools during the first semester and 112 during the second semester.

3/ There were 11 high schools during both school years. None of these schools participated in the Special School Milk Program until late February 1956, and at that time all 11 schools participated.

APPENDIX

Data were adjusted for average daily attendance and number of days milk was served in all cases.

Data were categorized by size of school, income and educational level of adults in the area served by the schools, grade level of the pupils, and times of service. Schools were assigned a classification code for each of the categories. Three levels of attendance were used as a measure of the size of school. The median income of families and unrelated individuals and the educational level of persons 25 years old and over in the area served by the schools was used to classify schools into one of three income and educational categories--high, middle, and low. Census tracts corresponding to the area served by the school furnished a basis for determining the income and educational level for each school.

<u>Categories</u>	<u>Elementary schools</u>	<u>High schools</u>
Size of school:		
Large	750 and over	1,750 pupils and over
Medium	500 - 749	1,500-1,749 pupils
Small	Less than 500	Less than 1,500 pupils
Median income level in school district:		
High	\$3,000 and over	\$3,000 and over
Middle	\$2,000-\$2,999	\$2,000-\$2,999
Low	Less than \$2,000	Less than \$2,000
Educational level of persons 25 years old and over in school district:		
High	9.0 years and over	9.0 years and over
Middle	8.5-8.9 years	8.5-8.9 years
Low	Less than 8.5 years	Less than 8.5 years